USDA Foreign Agricultural Service

Iran: Crop Progress Report

MY 2009/10

March Summary **March 27, 2009**

(1) Wheat and barley production in MY 2009/10 in Iran is currently projected to increase over last year's severely drought reduced harvest but is expected to remain below the 5-year average. This projection is supported by season-to-date precipitation conditions and satellite-derived (MODIS NDVI) vegetation index time series data. Major grain-producing provinces in the northwest and northeast have been receiving adequate rainfall this year and are showing near-normal crop vegetation development. Other important provinces in the southwest have received well-below normal rainfall and are showing much lower vegetation than normal.

(2) Table 1 shows last year's (MY 2008/09) wheat and barley production statistics for Iran along with the current projection for MY 2009/10 based on current conditions. Tables 2 and 3 provide provincial level comparisons of projected statistics to the average of past year's grain production and area. The current statistics for the MY 2009/10 crops were derived from conditions as of early March and will be subject to change as additional data is acquired and it gets nearer the peak of the winter grains growing season. It should also be noted that due to the modeling process there will be a higher margin of error in the provincial level statistics than there will be in the national totals.

(3) Season-to-date rainfall has been much improved compared to last year in the northwest, north, and northeastern provinces, benefitting both rainfed and irrigated winter grain crops. Last year (MY 2008/09) considerable crop losses occurred in these same regions owing to severely dry and hot conditions throughout the spring and early summer months. Though seasonal rainfall conditions have been more favorable than last year, total accumulations this year are still well below normal in many agricultural areas of the country (Figure 1). Currently 52% of winter grains area in Iran (52% of barley and 55% of wheat) has received below normal precipitation, particularly in the south and central portions of the country. Many of these regions (>70%) are at least partially irrigated and still have potential to produce winter grain crops. However it is currently unknown to what extent the sustained two-year drought is taking a toll on irrigation water availability.

(4) Unseasonably warm temperatures (Figure 3) have continued since late January which has led to significant snow melt, particularly in the Northern provinces. Current snow area and depth estimates indicate conditions to be well below the previous five year average (Figure 4). While not directly correlated with crop health and productivity during the growing season, early snowmelt could potentially eliminate a late spring source of irrigation to crops in lowland areas. The primary concern would be if spring rainfall is deficient and drought conditions persist. Rivers and aquifers that draw water from the highlands into mountain valleys are prominent sources of irrigation, so a loss of snow pack and/or precipitation to replenish those supplies would be detrimental.

(5) MODIS NDVI vegetation index values compared to last year over Iran indicate mixed conditions, showing both large-scale decreases and increases in crop vegetation and grain production potential. Significant declines in crop vegetation are particularly evident in the southern provinces of Khuzestan and Fars, which account for 25% of national wheat and 10% of barley production. Large increases in crop vegetation are evident in provinces like Kermanshah, Kurdistan, West Azarbaijan, and Golestan, which account for 22% of wheat and 14% of barley production (Figure 7).

(6) An analysis of high resolution imagery provides further proof that areas receiving less than normal rainfall have not progressed well since the start of the season (Figure 9) whereas areas receiving adequate rainfall show actively growing winter grains and have had large increases in vegetation since the start of the season (Figure 10).

Commodity	Attribute	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010 (Projected)[1]
Barley	Area Harvested (1000 HA)	1600	1659	1700	1700	1300	1543
	Production (1000 MT)	2940	2857	3000	3000	2000	2552
	Yield (MT/HA)	1.84	1.72	1.76	1.76	1.54	1.65
Wheat	Area Harvested (1000 HA)	6605	6951	6500	6900	5850	6370
	Production (1000 MT)	14568	14308	14500	15000	10000	12002
	Yield (MT/HA)	2.21	2.06	2.23	2.17	1.71	1.88

Not official USDA statistics

Table 1. Projected national barley and wheat crop production statistics for MY 2009/10 compared against previous years.
Data Source: MODIS NDVI; USDA-FAS Production, Supply, and Distribution online database.

[1] Projected statistics are modeled from historical data in correlation with MODIS NDVI. The model projects upon the most current March NDVI data and as such the model numbers will likely change as the season progresses and grain production nears its peak in April and May.

	Iran: Historical Wheat Statistics									
	Province	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07 - 2008/09	2009/10	5 Yr Avg	% Diff.
Northwest	**Azarbayejan Sharghi**										
	Area (Mha)	0.418	0.414	0.429	0.431	0.453	0.443	-	0.431	0.434	-0.61%
	Yield (MT/ha)	1.026	1.169	1.502	1.592	1.635	1.675	-	1.437	1.514	-5.11%
	Production (MMT)	0.429	0.484	0.644	0.686	0.741	0.742	-	0.620	0.659	-5.99%
	Azarbayejan Gharbi										
	Area	0.301	0.307	0.327	0.327	0.338	0.401	-	0.339	0.340	-0.44%
	Yield	1.331	1.469	1.923	2.138	2.295	1.753	-	1.859	1.916	-2.95%
	Production	0.400	0.451	0.628	0.700	0.775	0.703	-	0.629	0.652	-3.40%
	Ardabil										
	Area	0.266	0.291	0.319	0.346	0.357	0.364	-	0.323	0.335	-3.75%
	Yield	1.342	1.490	1.697	1.882	1.702	1.684	-	1.651	1.691	-2.41%
	Production	0.357	0.434	0.541	0.651	0.609	0.613	-	0.533	0.569	-6.43%
	Gilan										
	Area	0.017	0.017	0.015	0.015	0.016	0.014	-	0.016	0.015	1.28%
	Yield	0.678	0.915	0.976	1.059	1.016	1.039	-	0.940	1.001	-6.07%
	Production	0.012	0.016	0.015	0.016	0.017	0.014	-	0.015	0.015	-4.63%
	Zanjan										
	Area	0.318	0.292	0.409	0.353	0.315	0.304	-	0.315	0.335	-5.80%
	Yield	0.636	0.634	0.609	1.085	1.218	1.209	-	1.159	0.951	21.86%
	Production	0.202	0.185	0.249	0.384	0.383	0.367	-	0.365	0.314	16.46%
	Kordestan										
	Area	0.415	0.400	0.424	0.427	0.468	0.524	-	0.452	0.449	0.81%
	Yield	0.726	0.760	0.936	1.294	1.485	1.202	-	1.160	1.135	2.15%
	Production	0.302	0.303	0.397	0.552	0.695	0.631	-	0.524	0.516	1.71%
	Ghazvin										
	Area	0.103	0.118	0.117	0.137	0.131	0.166	-	0.137	0.134	2.46%
	Yield	1.926	2.201	2.351	2.147	2.546	2.128	-	2.072	2.275	-8.93%
	Production	0.198	0.260	0.274	0.295	0.333	0.354	-	0.284	0.303	-6.31%
	Markazi										
	Area	0.176	0.204	0.210	0.212	0.225	0.219	-	0.214	0.214	-0.09%
	Yield	1.104	1.565	1.635	1.806	2.108	1.686	-	1.771	1.760	0.63%
	Production	0.195	0.320	0.344	0.383	0.475	0.369	-	0.379	0.378	0.23%
	Hamedan										
	Area	0.380	0.373	0.397	0.403	0.435	0.441	-	0.414	0.410	1.00%
	Yield	1.029	1.544	1.682	1.735	2.045	1.490	-	1.688	1.699	-0.64%
	Production	0.391	0.577	0.668	0.700	0.890	0.656	-	0.699	0.698	0.13%
	Kermanshah										
	Area	0.292	0.340	0.385	0.390	0.432	0.424	-	0.394	0.394	-0.04%
	Yield	1.003	1.490	2.066	2.051	2.053	2.105	-	2.046	1.953	4.74%
	Production	0.293	0.507	0.796	0.799	0.886	0.892	-	0.808	0.776	3.84%
	Ilam										
	Area	0.086	0.110	0.123	0.105	0.118	0.134	-	0.115	0.118	-2.19%
	Yield	1.053	1.596	1.930	1.352	1.589	1.807	-	1.129	1.655	-31.77%
	Production	0.091	0.176	0.238	0.141	0.188	0.242	-	0.130	0.197	-33.84%
	Lorestan										
	Area	0.262	0.250	0.296	0.311	0.344	0.337	-	0.308	0.308	0.14%
	Yield	1.380	1.405	1.999	1.749	1.617	1.428	-	1.656	1.640	0.97%
	Production	0.361	0.351	0.593	0.543	0.557	0.482	-	0.510	0.505	1.00%
	Khozestan										
	Area	0.360	0.485	0.581	0.422	0.497	0.600	-	0.508	0.517	-1.77%
	Yield	2.536	2.439	2.466	2.564	2.463	2.479	-	1.870	2.482	-24.66%
	Production	0.914	1.182	1.434	1.083	1.224	1.488	-	0.950	1.282	-25.92%

Iran: Historical Wheat Statistics (Cont.)											
	Province	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07 - 2008/09	2009/10	5 Yr Avg	% Diff.
Central	Golestan										
	Area	0.310	0.697	0.357	0.371	0.390	0.366	-	0.423	0.436	-3.11%
	Yield	2.680	2.104	2.436	3.061	2.852	2.764	-	2.595	2.643	-1.84%
	Production	0.830	1.467	0.871	1.134	1.112	1.011	-	1.096	1.119	-2.00%
	Mazandaran										
	Area	0.052	0.068	0.055	0.063	0.066	0.060	-	0.068	0.062	8.99%
	Yield	1.316	2.117	2.430	2.187	2.427	1.353	-	1.852	2.103	-11.92%
	Production	0.068	0.144	0.135	0.138	0.159	0.081	-	0.126	0.131	-4.07%
	Tehran										
	Area	0.050	0.049	0.045	0.046	0.056	0.057	-	0.053	0.053	1.24%
	Yield	3.218	3.994	4.266	4.800	4.660	4.793	-	4.515	4.503	0.26%
	Production	0.162	0.194	0.192	0.222	0.263	0.319	-	0.240	0.238	0.95%
	Ghom										
	Area	0.019	0.012	0.015	0.015	0.014	0.013	-	0.014	0.014	3.26%
	Yield	2.601	3.069	3.749	4.099	4.840	3.737	-	3.389	3.899	-13.08%
	Production	0.049	0.036	0.057	0.061	0.069	0.047	-	0.048	0.054	-11.02%
	Semnan										
	Area	0.046	0.038	0.041	0.042	0.046	0.035	-	0.040	0.040	-0.22%
	Yield	2.660	2.684	3.160	3.271	3.212	3.278	-	3.017	3.121	-3.34%
	Production	0.122	0.101	0.130	0.137	0.147	0.115	-	0.121	0.126	-3.71%
	Esfahan										
	Area	0.101	0.080	0.104	0.124	0.128	0.132	-	0.103	0.114	-9.23%
	Yield	2.822	2.656	3.260	3.709	4.205	3.913	-	2.815	3.549	-20.67%
	Production	0.285	0.213	0.341	0.460	0.538	0.516	-	0.290	0.413	-29.75%
	Yazd										
	Area	0.023	0.022	0.027	0.028	0.027	0.027	-	0.027	0.026	1.77%
	Yield	2.903	3.018	3.308	3.621	3.849	3.772	-	3.507	3.514	-0.18%
	Production	0.066	0.068	0.091	0.100	0.103	0.101	-	0.094	0.092	1.12%
	CharMahal & Bakhtiari										
	Area	0.070	0.082	0.072	0.083	0.084	0.067	-	0.078	0.077	0.76%
	Yield	1.433	1.802	2.541	2.294	2.269	2.199	-	2.061	2.221	-7.19%
	Production	0.101	0.148	0.182	0.190	0.190	0.147	-	0.161	0.171	-6.17%
	Kohkiloyeh & Boyrahmad										
	Area	0.080	0.091	0.128	0.157	0.120	0.127	-	0.122	0.125	-1.96%
	Yield	1.308	1.544	2.155	1.689	1.535	1.410	-	1.230	1.667	-26.20%
	Production	0.104	0.141	0.277	0.264	0.184	0.179	-	0.150	0.209	-28.11%
	Boshehr										
	Area	0.019	0.120	0.167	0.172	0.166	0.158	-	0.201	0.157	28.31%
	Yield	1.307	0.385	0.680	0.349	0.516	0.837	-	0.451	0.553	-18.54%
	Production	0.025	0.046	0.113	0.060	0.086	0.132	-	0.091	0.088	3.49%
	Fars										
	Area	0.396	0.451	0.441	0.597	0.539	0.589	-	0.526	0.523	0.40%
	Yield	3.003	2.919	3.853	3.104	3.674	3.510	-	2.854	3.412	-16.34%
	Production	1.188	1.316	1.699	1.854	1.981	2.066	-	1.500	1.783	-15.88%
East	khorasan razavi										
	Area	0.420	0.474	0.635	0.695	0.676	0.528	-	0.599	0.602	-0.41%
	Yield	1.617	1.705	1.966	2.172	2.194	2.123	-	2.079	2.032	2.31%
	Production	0.680	0.807	1.249	1.510	1.483	1.122	-	1.246	1.234	0.93%
	Kerman										
	Area	0.076	0.075	0.077	0.091	0.108	0.112	-	0.098	0.093	5.53%
	Yield	2.252	2.346	2.570	2.677	3.094	3.265	-	2.850	2.790	2.14%
	Production	0.171	0.176	0.198	0.244	0.333	0.365	-	0.278	0.263	5.74%
	Sistan & Baloshesta										
	Area	0.035	0.029	0.031	0.035	0.045	0.056	-	0.039	0.039	-0.40%
	Yield	2.046	2.274	1.924	2.328	2.183	2.079	-	2.179	2.158	1.00%
	Production	0.072	0.066	0.059	0.081	0.098	0.117	-	0.085	0.084	0.86%
	Hormozgan										
	Area	0.009	0.011	0.012	0.013	0.012	0.014	-	0.013	0.012	6.69%
	Yield	2.169	2.923	3.264	4.175	4.207	4.014	-	2.312	3.717	-37.79%
	Production	0.020	0.033	0.038	0.052	0.050	0.055	-	0.030	0.046	-34.09%
	Total										
	Area (Mha)	5.101	5.902	6.241	6.409	6.605	6.720	-	6.370	6.376	-0.09%
	Yield	1.586	1.729	1.995	2.097	2.206	2.072	-	1.884	2.020	-6.71%
	Production (MMT)	8.088	10.202	12.450	13.440	14.568	13.927	-	12.002	12.918	-7.09%

Not official USDA statistics

Table 2. Provincial level wheat production estimates for MY 2009/10 compared against previous year's average.
Data Source: MODIS NDVI; Ministry of Jahad-e-Agriculture, Iran

Iran: Historical Barley Statistics											
	Province	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07 - 2008/09	2009/10	5 Yr Avg	% Diff.
Northwest	Azarbayejan Sharghi										
	Area (Mha)	0.081	0.078	0.090	0.084	0.077	0.080	-	0.082	0.082	-0.07%
	Yield (MT/ha)	1.007	1.166	1.413	1.479	1.387	1.457	-	1.409	1.380	2.11%
	Production (MMT)	0.082	0.091	0.126	0.124	0.106	0.116	-	0.115	0.113	1.87%
	Azarbayejan Gharbi										
	Area	0.035	0.039	0.048	0.045	0.055	0.052	-	0.046	0.048	-3.24%
	Yield	1.614	1.494	1.715	1.744	1.803	1.478	-	1.703	1.647	3.41%
	Production	0.057	0.058	0.083	0.079	0.099	0.076	-	0.079	0.079	-0.35%
	Ardabil										
	Area	0.089	0.091	0.090	0.067	0.101	0.095	-	0.089	0.089	0.36%
	Yield	1.266	1.276	1.597	1.573	1.299	1.388	-	1.424	1.427	-0.19%
	Production	0.112	0.116	0.143	0.106	0.131	0.132	-	0.127	0.126	0.99%
	Gilan										
	Area	0.008	0.009	0.008	0.008	0.009	0.006	-	0.008	0.008	-1.36%
	Yield	0.702	1.011	0.990	1.201	1.154	1.111	-	1.094	1.093	0.09%
	Production	0.006	0.009	0.008	0.009	0.011	0.007	-	0.009	0.009	-1.30%
	Zanjan										
	Area	0.032	0.035	0.109	0.060	0.057	0.050	-	0.052	0.062	-16.63%
	Yield	0.851	0.762	0.502	1.004	1.089	1.222	-	1.155	0.916	26.06%
	Production	0.027	0.027	0.055	0.060	0.062	0.061	-	0.060	0.053	13.09%
	Kordestan										
	Area	0.029	0.041	0.044	0.036	0.037	0.034	-	0.038	0.038	-1.16%
	Yield	0.911	0.870	1.068	1.433	1.443	1.348	-	1.301	1.232	5.61%
	Production	0.027	0.036	0.047	0.051	0.053	0.046	-	0.049	0.047	5.82%
	Ghazvin										
	Area	0.025	0.026	0.041	0.036	0.031	0.026	-	0.033	0.032	3.69%
	Yield	1.700	2.356	2.232	2.218	2.446	2.262	-	2.048	2.307	-11.21%
	Production	0.042	0.062	0.091	0.080	0.077	0.059	-	0.068	0.074	-7.63%
	Markazi										
	Area	0.033	0.046	0.038	0.042	0.040	0.035	-	0.034	0.040	-15.92%
	Yield	2.373	3.132	3.099	3.071	3.527	3.160	-	3.760	3.198	17.59%
	Production	0.079	0.145	0.118	0.130	0.141	0.112	-	0.128	0.129	-1.09%
	Hamedan										
	Area	0.052	0.058	0.056	0.060	0.068	0.067	-	0.062	0.062	0.35%
	Yield	1.643	2.345	2.511	2.686	2.935	2.256	-	2.690	2.547	5.62%
	Production	0.085	0.136	0.140	0.162	0.200	0.150	-	0.166	0.157	5.74%
	Kermanshah										
	Area	0.078	0.102	0.102	0.128	0.102	0.113	-	0.109	0.109	-0.37%
	Yield	0.722	1.477	1.777	1.558	1.511	1.521	-	1.672	1.569	6.60%
	Production	0.057	0.150	0.181	0.199	0.154	0.171	-	0.182	0.171	6.30%
	Ilam										
	Area	0.033	0.052	0.062	0.050	0.050	0.062	-	0.052	0.055	-5.11%
	Yield	0.505	1.027	1.259	0.778	0.655	1.027	-	0.574	0.949	-39.57%
	Production	0.017	0.053	0.077	0.039	0.033	0.064	-	0.030	0.053	-43.68%
	Loreatan										
	Area	0.145	0.175	0.151	0.123	0.137	0.175	-	0.156	0.152	2.41%
	Yield	0.931	1.242	1.614	1.065	1.047	1.117	-	1.202	1.217	-1.26%
	Production	0.135	0.218	0.244	0.130	0.144	0.196	-	0.187	0.186	0.60%
	Khozestan										
	Area	0.033	0.105	0.113	0.075	0.093	0.106	-	0.095	0.098	-3.50%
	Yield	1.081	0.909	1.234	1.059	0.829	0.970	-	0.737	1.000	-26.33%
	Production	0.036	0.095	0.140	0.080	0.077	0.103	-	0.070	0.099	-29.23%

Iran: Historical Barley Statistics (Cont.)											
	Province	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07 - 2008/09	2009/10	5 Yr Avg	% Diff.
Central	Golestan										
	Area	0.074	0.060	0.059	0.050	0.066	0.064	-	0.067	0.060	12.87%
	Yield	0.976	1.068	1.023	2.060	1.770	1.482	-	1.320	1.481	-10.85%
	Production	0.072	0.064	0.060	0.103	0.117	0.095	-	0.089	0.088	1.43%
	Mazandaran										
	Area	0.025	0.028	0.023	0.026	0.031	0.019	-	0.024	0.026	-5.30%
	Yield	0.698	1.607	1.170	1.849	1.824	0.723	-	1.070	1.435	-25.45%
	Production	0.017	0.045	0.027	0.048	0.057	0.013	-	0.026	0.038	-32.51%
	Tehran										
	Area	0.032	0.035	0.041	0.038	0.044	0.041	-	0.039	0.040	-0.85%
	Yield	2.890	3.497	3.783	3.960	4.005	3.686	-	3.709	3.786	-2.03%
	Production	0.093	0.121	0.157	0.149	0.176	0.151	-	0.146	0.151	-3.11%
	Ghom										
	Area	0.020	0.025	0.022	0.022	0.020	0.020	-	0.021	0.022	-3.67%
	Yield	2.554	2.975	3.204	3.466	3.724	3.467	-	3.009	3.367	-10.64%
	Production	0.051	0.074	0.070	0.076	0.073	0.069	-	0.063	0.073	-13.39%
	Semnan										
	Area	0.015	0.016	0.018	0.018	0.017	0.015	-	0.016	0.017	-3.92%
	Yield	2.381	2.488	2.873	3.147	3.216	2.925	-	2.808	2.930	-4.15%
	Production	0.035	0.040	0.051	0.057	0.053	0.042	-	0.045	0.049	-8.09%
	Esfahan										
	Area	0.043	0.035	0.048	0.053	0.051	0.055	-	0.044	0.048	-8.87%
	Yield	3.135	3.238	3.557	3.495	3.782	3.410	-	3.062	3.496	-12.43%
	Production	0.135	0.113	0.171	0.184	0.194	0.187	-	0.135	0.170	-20.55%
	Yazd										
	Area	0.004	0.004	0.006	0.006	0.006	0.006	-	0.006	0.006	-3.17%
	Yield	2.641	2.608	2.855	2.970	3.122	3.048	-	2.312	2.921	-20.83%
	Production	0.010	0.010	0.017	0.019	0.020	0.020	-	0.013	0.017	-24.12%
	CharMahal & Bakhtiari										
	Area	0.025	0.025	0.028	0.025	0.020	0.020	-	0.021	0.024	-9.75%
	Yield	1.015	1.641	2.133	1.834	1.762	1.604	-	1.410	1.795	-21.47%
	Production	0.025	0.040	0.060	0.046	0.036	0.033	-	0.030	0.043	-29.83%
	Kohkiloyeh & Boyrahmad										
	Area	0.035	0.053	0.033	0.044	0.052	0.040	-	0.046	0.045	3.53%
	Yield	0.710	1.165	1.778	1.503	1.049	1.068	-	0.877	1.313	-33.22%
	Production	0.025	0.062	0.059	0.066	0.055	0.042	-	0.040	0.057	-29.06%
	Boshehr										
	Area	0.001	0.021	0.030	0.020	0.025	0.032	-	0.025	0.026	-2.33%
	Yield	0.314	0.283	0.669	0.280	0.475	0.575	-	0.320	0.456	-29.89%
	Production	0.000	0.006	0.020	0.006	0.012	0.018	-	0.008	0.012	-35.44%
	Fars										
	Area	0.054	0.100	0.136	0.118	0.130	0.140	-	0.123	0.125	-1.59%
	Yield	1.877	1.454	1.891	1.803	1.495	1.423	-	0.817	1.613	-49.36%
	Production	0.102	0.146	0.258	0.212	0.194	0.200	-	0.100	0.202	-50.27%
East	khorasan razavi										
	Area	0.170	0.209	0.251	0.253	0.241	0.187	-	0.221	0.228	-3.34%
	Yield	1.907	2.239	2.531	2.566	2.429	2.466	-	2.369	2.446	-3.14%
	Production	0.325	0.469	0.636	0.649	0.586	0.460	-	0.523	0.560	-6.64%
	Kerman										
	Area	0.017	0.013	0.015	0.015	0.029	0.031	-	0.021	0.020	2.01%
	Yield	1.619	1.990	2.243	1.940	2.194	2.293	-	2.158	2.132	1.24%
	Production	0.027	0.025	0.034	0.028	0.063	0.070	-	0.045	0.044	1.49%
	Sistan & Baloocheeta										
	Area	0.004	0.004	0.007	0.007	0.008	0.024	-	0.011	0.010	2.66%
	Yield	1.473	1.738	1.424	1.674	1.712	1.398	-	1.523	1.589	-4.15%
	Production	0.006	0.008	0.010	0.012	0.014	0.034	-	0.016	0.016	2.82%
	Hormozgan										
	Area	0.002	0.002	0.001	0.001	0.001	0.005	-	0.002	0.002	2.84%
	Yield	1.175	1.586	1.136	0.953	1.215	1.223	-	1.263	1.222	3.32%
	Production	0.002	0.003	0.001	0.001	0.002	0.006	-	0.002	0.002	2.71%
	Total										
	Area (Mha)	1.194	1.487	1.670	1.510	1.600	1.599	-	1.543	1.573	-1.93%
	Yield	1.412	1.629	1.847	1.926	1.837	1.710	-	1.654	1.790	-7.58%
	Production (MMT)	1.686	2.423	3.085	2.908	2.940	2.734	-	2.552	2.818	-9.43%

Not official USDA statistics

Table 3. Provincial level Barley production estimates for MY 2009/10 compared against previous year's average.
Data Source: MODIS NDVI; Ministry of Jahad-e-Agriculture, Iran

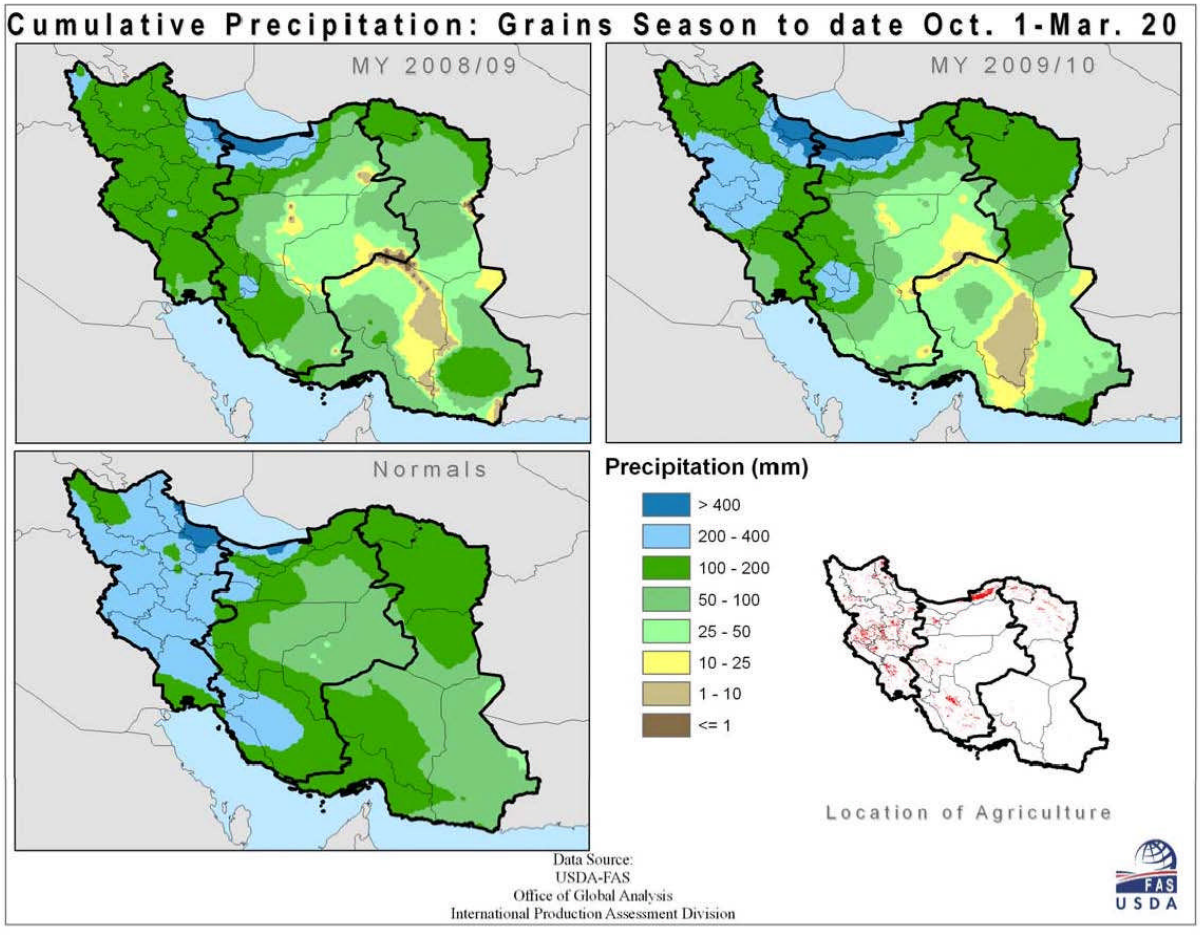

Figure 1. Cumulative precipitation since start of the current winter grains season, MY 2009/10, compared with the previous season, MY 2008/09, and precipitation normals.

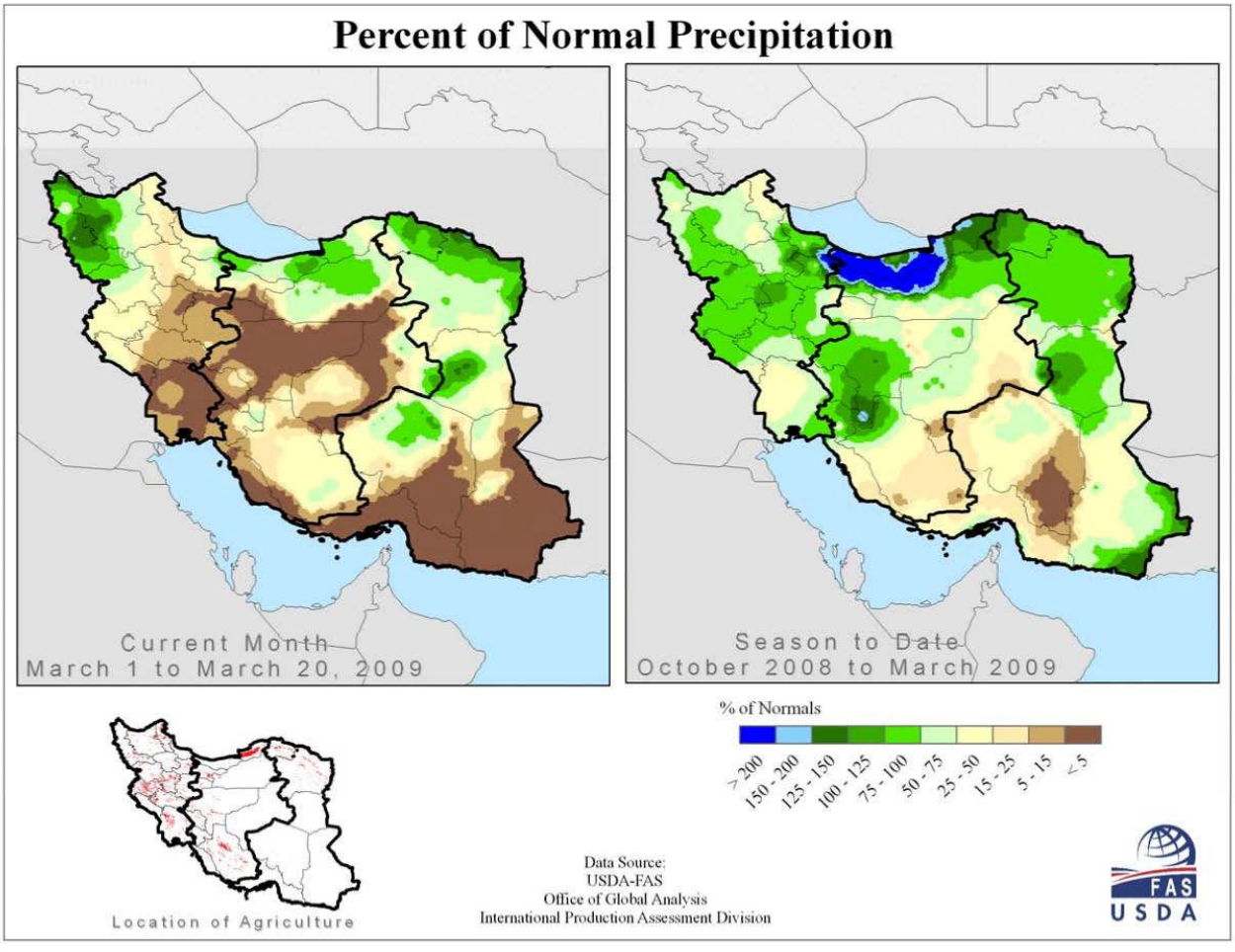

Figure 2. Percent of normals cumulative precipitation for current month and since the start of the winter grains season.

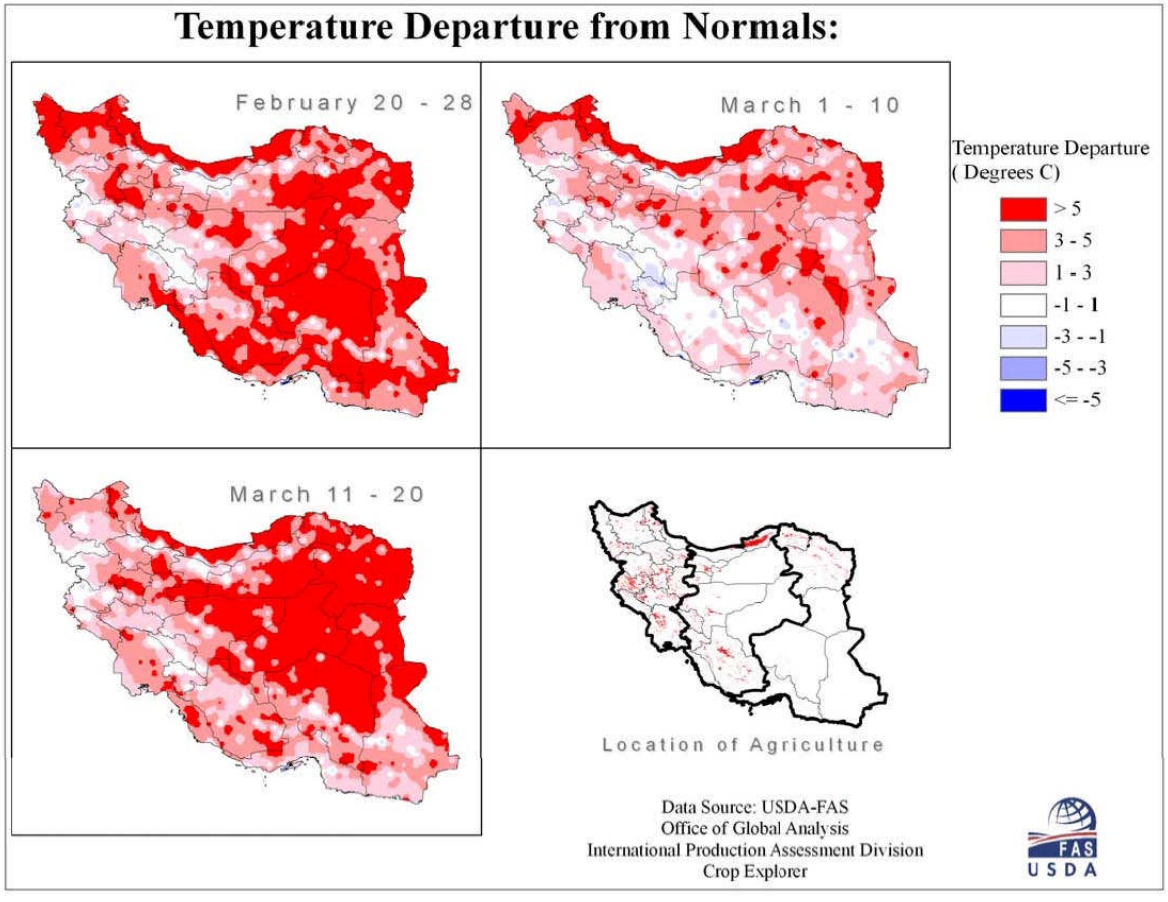

Figure 3. Departure from normal over the past three decades, February 20 through March 20, 2009.

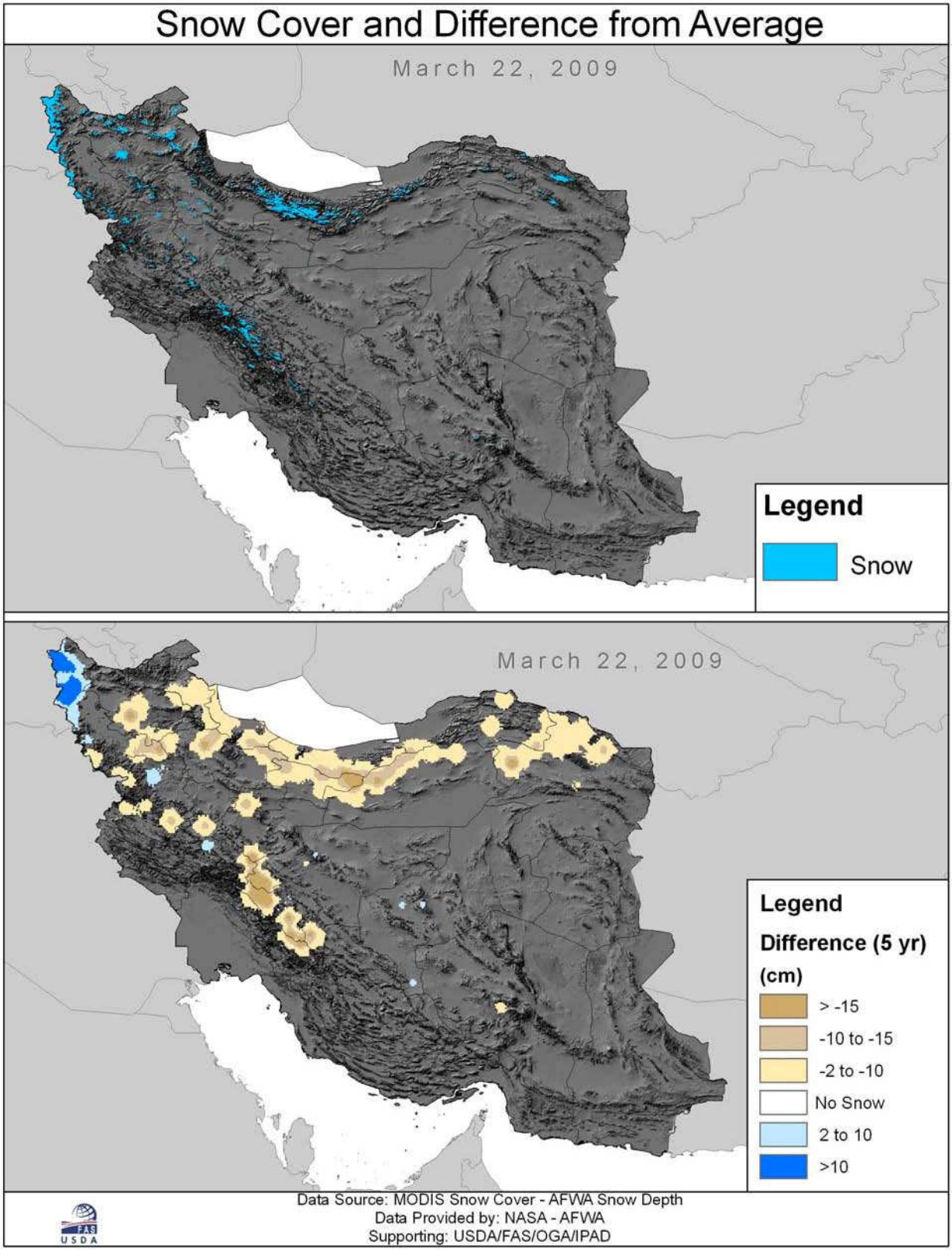

Figure 4. Snow accumulation as of March 22, 2009 and a comparison of current snow depth conditions to a 5 year average.

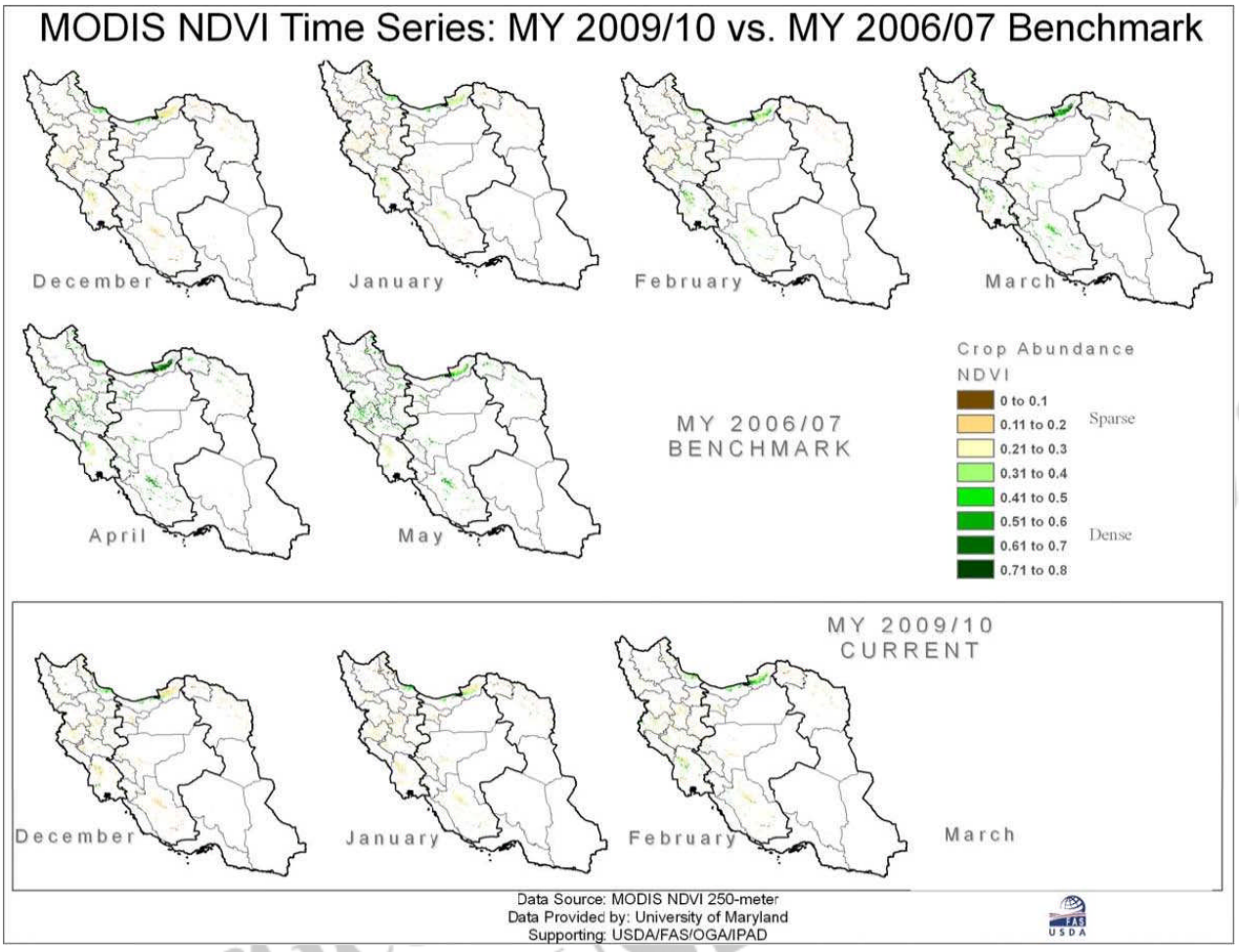

Figure 5. NDVI time series over agricultural regions in Iran, comparing benchmark year MY 2006/07 with current vegetation progress.

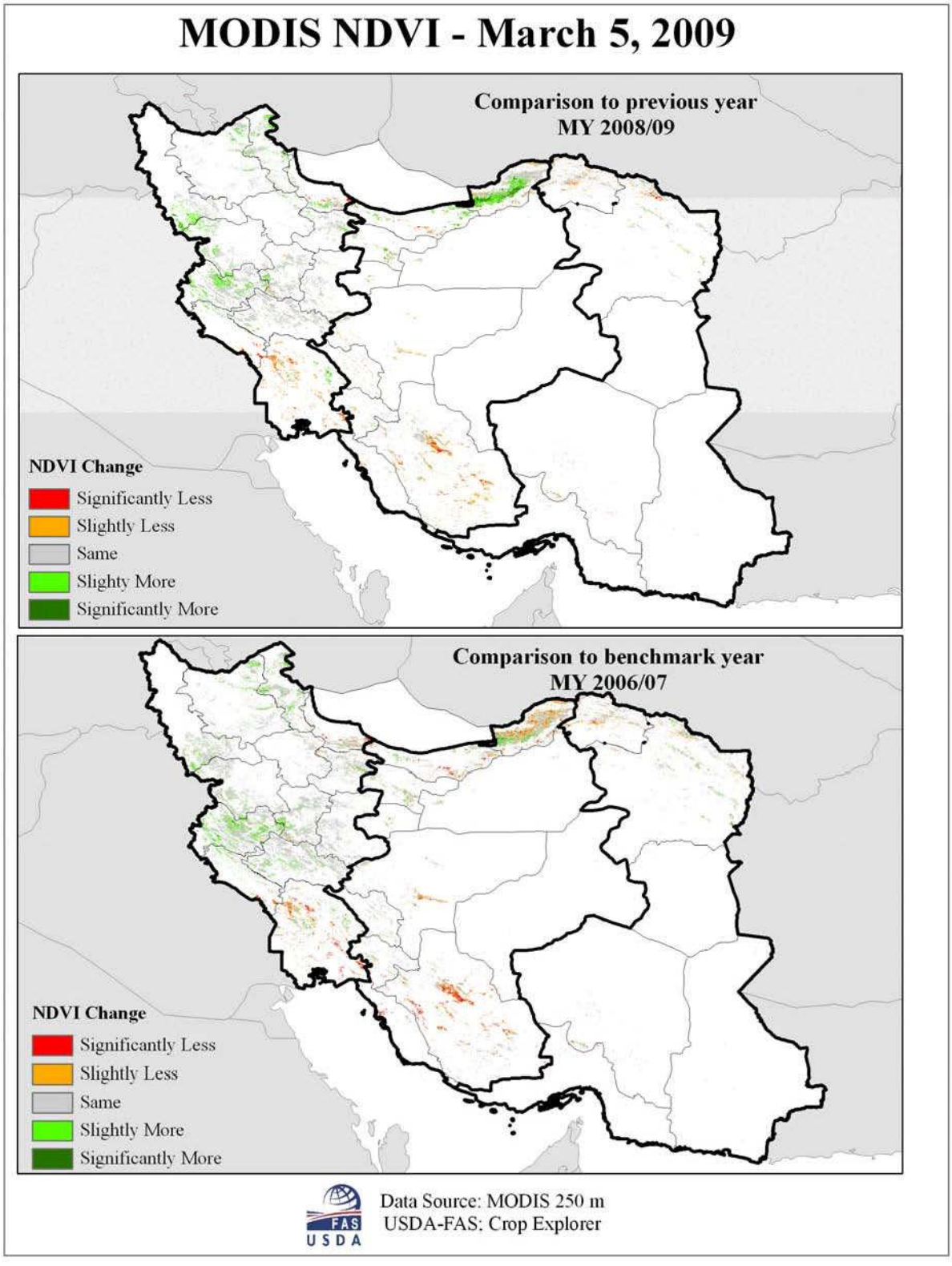

Figure 6. MODIS NDVI comparing vegetation abundance over agricultural lands to the previous year (MY2008/09), and comparing current vegetation abundance against a benchmark year (MY 2006/07).

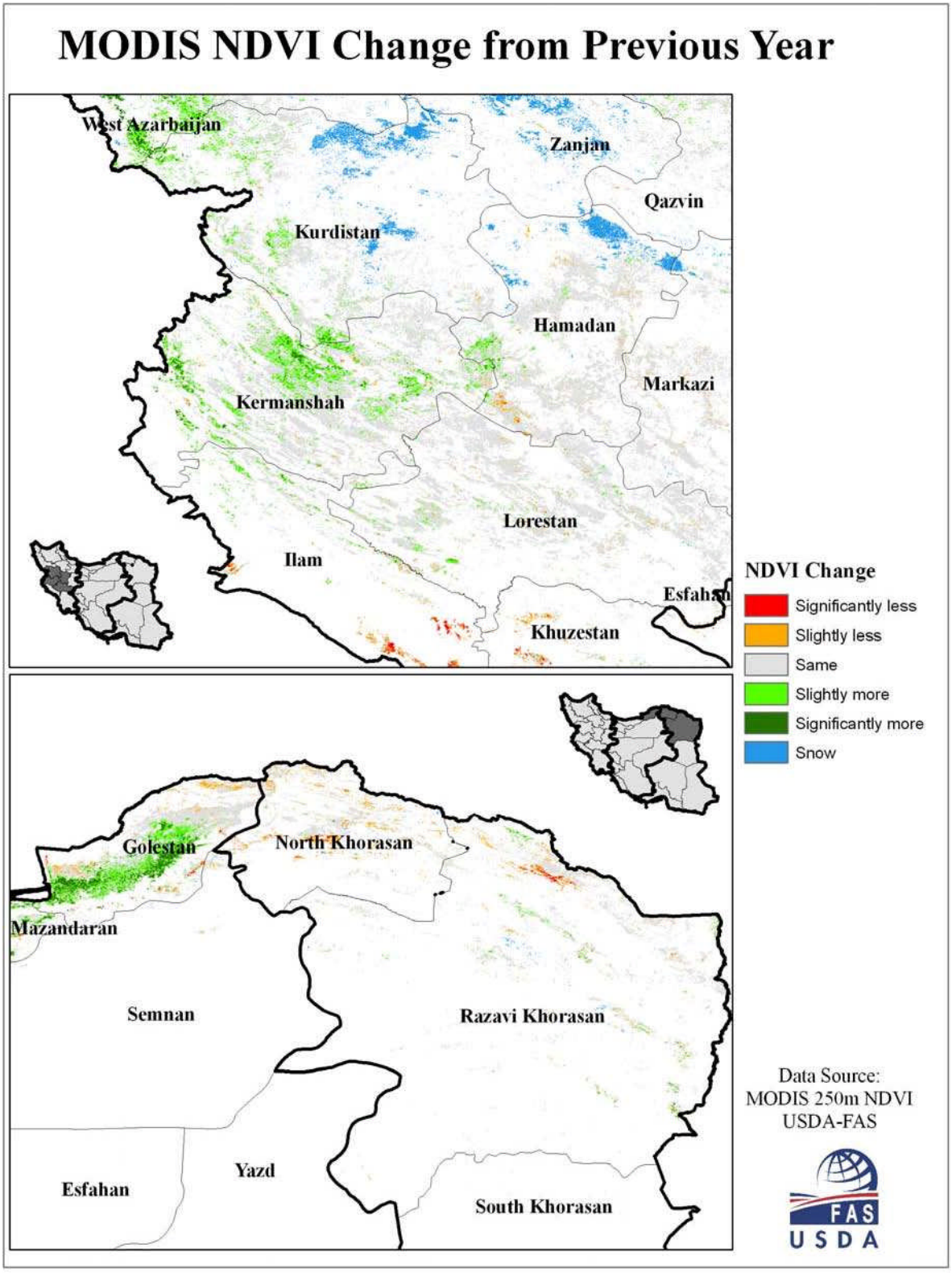

Figure 7. MODIS NDVI comparing vegetation abundance over agricultural lands to the previous year (MY2008/09) over the major grains provinces in then central northwest and northeast.

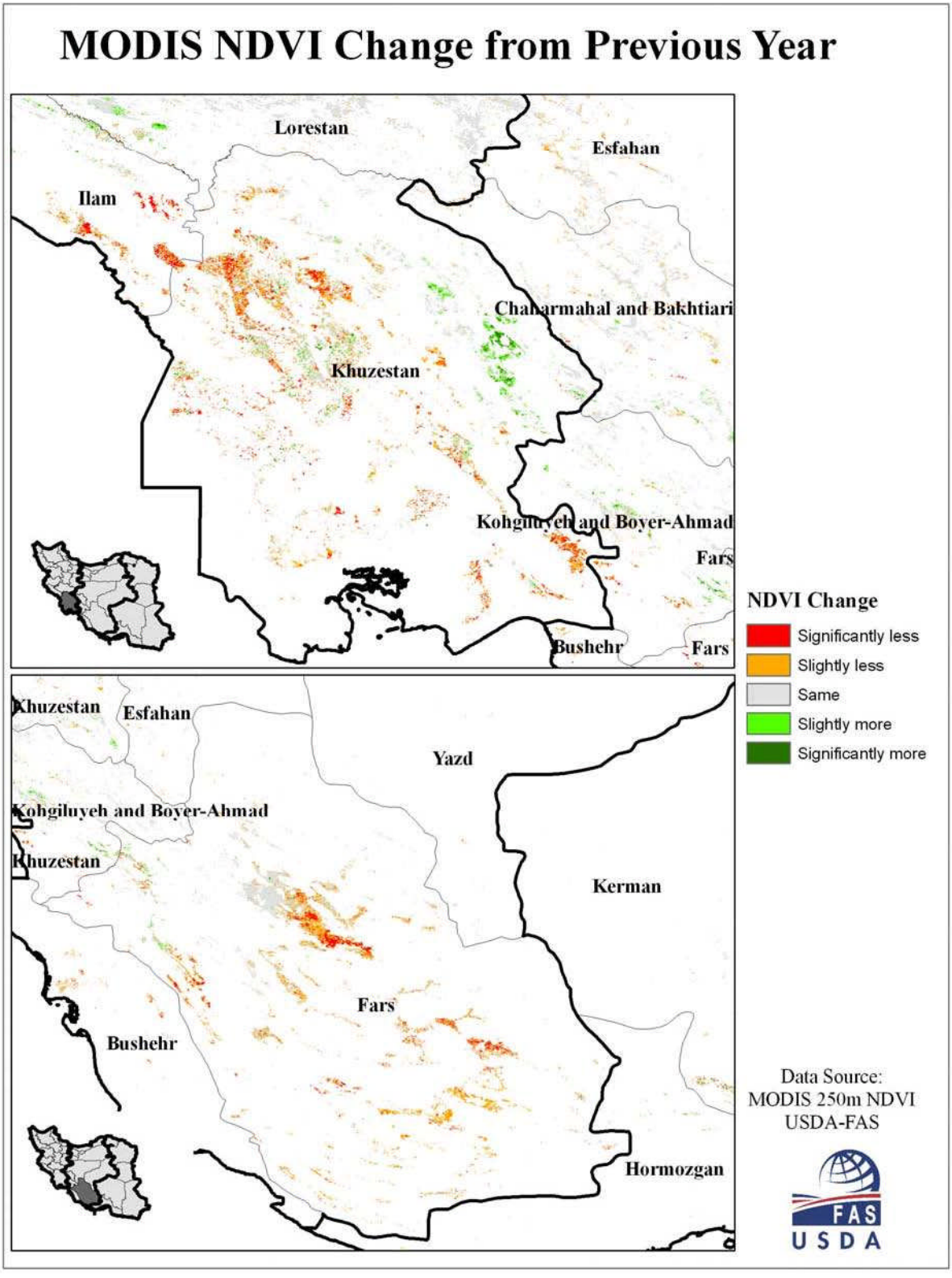

Figure 8. MODIS NDVI comparing vegetation abundance over agricultural lands to the previous year (MY2008/09) over the major irrigated grains provinces of Khuzestan and Fars.

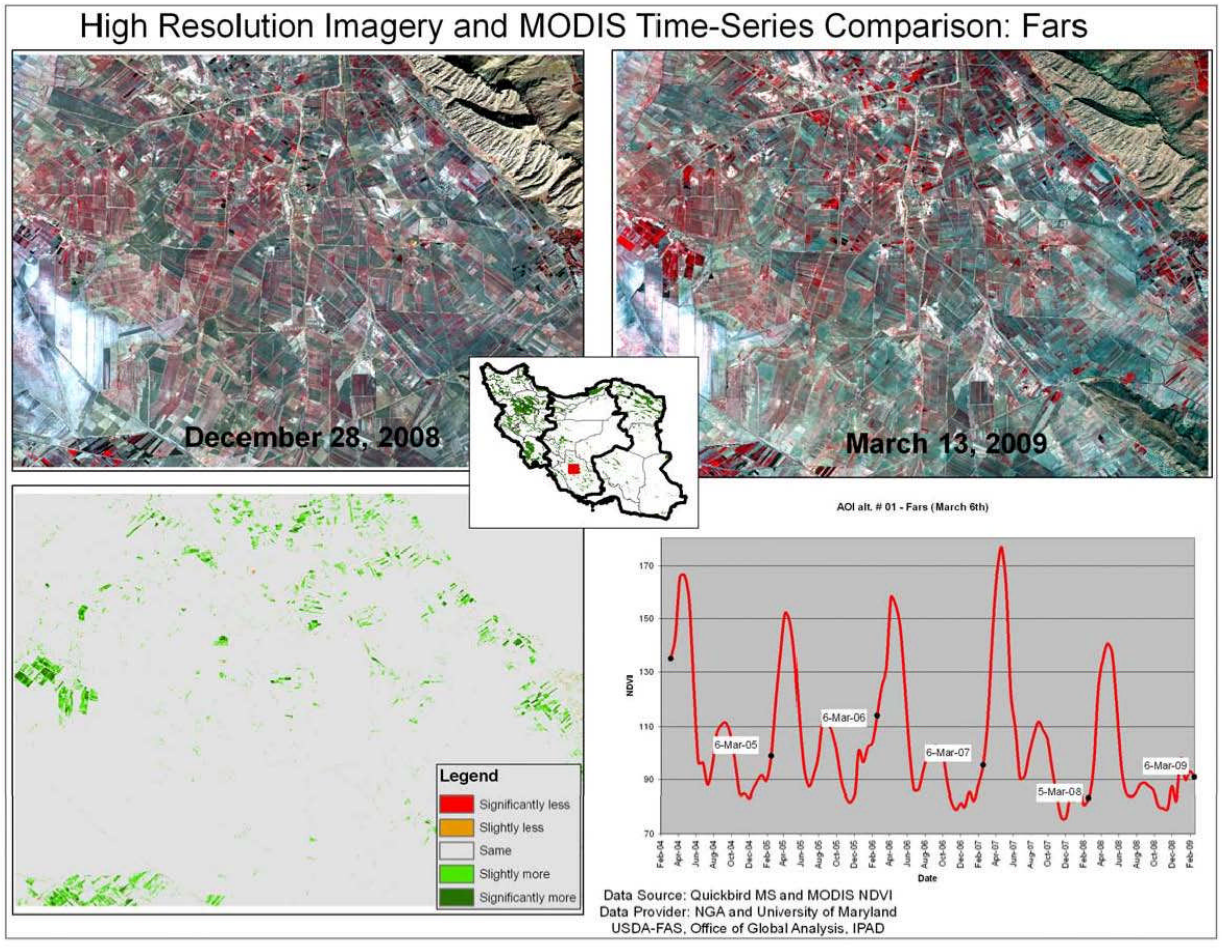

Figure 9. NDVI time-series analysis based on high resolution imagery in Fars. NDVI change from start of season (MY 2009/10) December 2008 to March 2009.

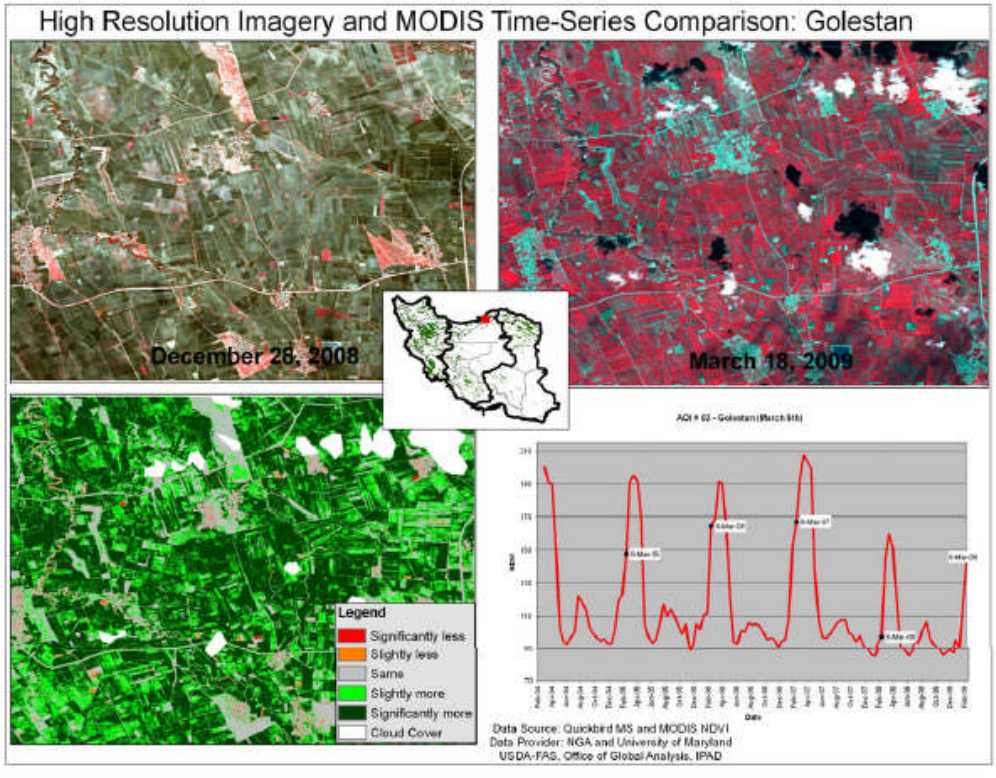

Figure 10. NDVI time-series analysis based on high resolution imagery in Golestan. NDVI change from start of season (MY 2009/10) December 2008 to March 2009.

Appendix

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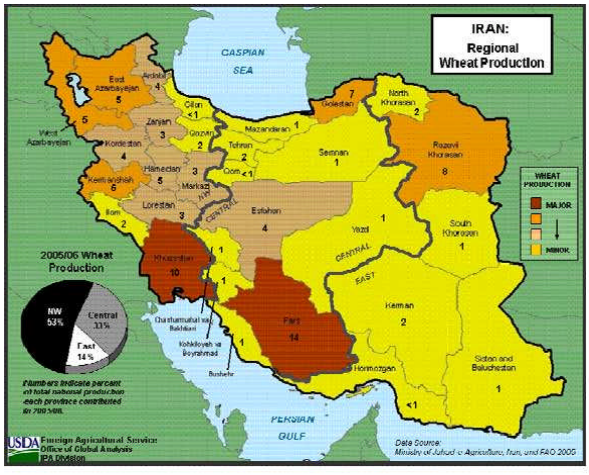

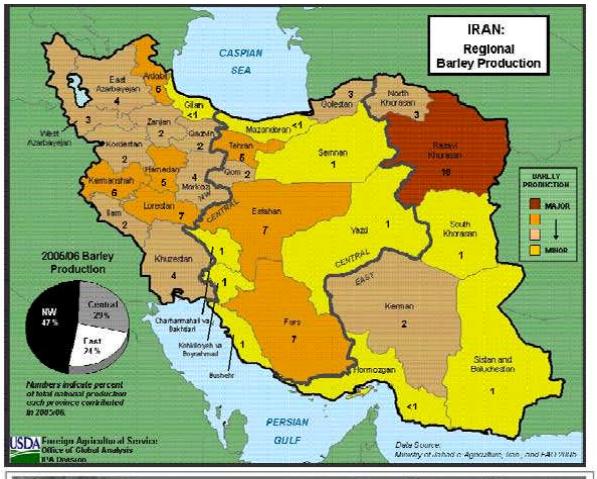

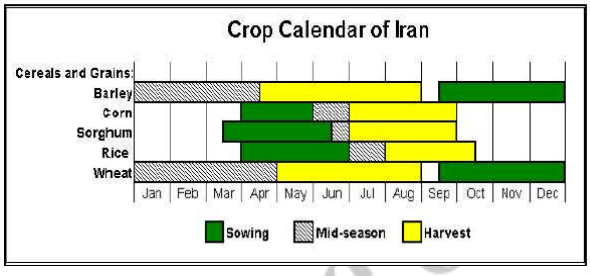

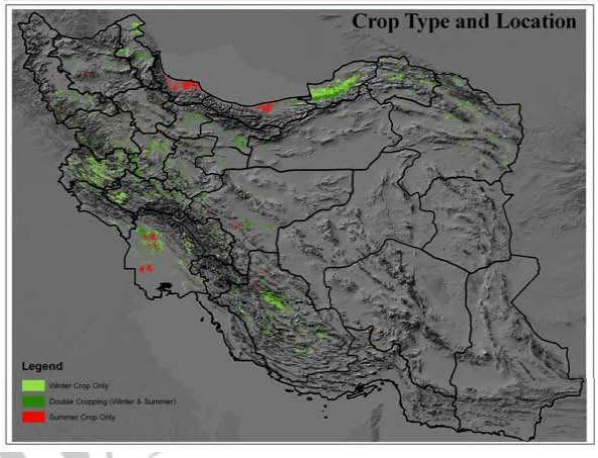

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